

# Minnesota State College Southeast

## MACH 1642: CNC Operations 1

### A. COURSE DESCRIPTION

Credits: 2

Lecture Hours/Week: 0

Lab Hours/Week: 4

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course will familiarize the student with CNC machining and set up. Students will set up and run programs on a CNC lathe and a CNC mill. (Prerequisite: None) (2 Credits: 0 lecture/2 lab)

**B. COURSE EFFECTIVE DATES:** 04/16/2020 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Safety considerations
2. Calculate machining data
3. Setup for CNC machines
4. Operation of CNC machines
5. Measure parts and compare to specifications

#### **D. LEARNING OUTCOMES (General)**

1. Demonstrate professionalism
2. Explain machine shop safety
3. Practice machine shop safety
4. Wear safety glasses & proper attire
5. Use reference books
6. Understand machine shop formulas
7. Calculate speeds & feeds
8. Calculate depth of cut
9. Saw parts
10. Keep tools clean
11. Maintain work area
12. Set up proper stop
13. Use proper fixture
14. Set up CNC machine
15. Use proper tool holders
16. Use cutter compensation
17. Check CNC set up
18. Run program on CNC machine tool
19. Set tool offset
20. Set work offset
21. Load correct tool
22. Download program
23. Fabricate parts to print
24. Clean work area

#### **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

None noted